REMARKS

Claims 1, 3-5 and 7-10 are pending in this application.

Claims 1, 3-5 and 10 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. This rejection is respectfully traversed.

Applicants disagree with the Examiner's assertion that the specification of the present application does not provide adequate support for the claimed limitation that the pressure outside the basket is same as the pressure inside the basket. The specification of the application describes that gas flowing from the gas tight basket can penetrate into the insulation layers (page 4, lines 7-13). The specification also describes that the basket only needs to be dimensioned to withstand the weight of the catalyst (page 4, lines 15-17), meaning that the basket is not to be designed for an internal (or external) overpressure. The pressure vessel is designed for the full operation pressure in contrast to the basket (page 4, lines 26-29). This is only possible when the pressure is the same inside and outside the basket, which it is, as the gas penetrates the insulation outside the basket. For at least these reasons, withdrawal of the rejection of claims 1, 3-5 and 10 is respectfully requested. Applicants submit that all pending claims are in compliance with 35 U.S.C. §112.

Applicants provide below comments on (i) the patentability of the pending claims, in the order provided in the Office Action (first for claims 1 and 7-9, then for claims 3-5, and then for claim 10); and (ii) the Examiner's comments in the "Response to Arguments" section set forth on pages 5-7 of the Office Action:

CLAIM REJECTIONS

Claims 1 and 7-9 are rejected under 35 U.S.C. §103(a) as being unpatentable over Ottle in view of Fujitani et al. and Ravault. This rejection is respectfully traversed.

The reactor of Ottle comprises an outer wall, a compacted insulation material, a foil, a catalyst, and a ring. The figures of Ottle show that the reactor is horizontally installed, meaning that the catalyst is supported by the lower part of the foil, insulation and outer wall. If it is vertically installed, then the catalyst can only be supported by the ring (if the catalyst is a monolith). A ring will not support a bed of catalyst in the form of particles.

If the CPO catalyst of Fujitani is installed in the reactor of Ottle, the resulting reactor may be used for CPO only if the foil both can withstand 800°C - 1200°C and the full operating pressure, as foil and outer shell are connected to each other at both inlet end and outlet end (Figs. 1 and 3) in the reactor of Ottle. In contrast, the claimed reactor has a tight connection between reactor shell and basket only at the inlet (page 2, lines 20-22), whereas there is a gap with porous insulation between the basket side wall and reactor shell at the internal basket outlet (page 3, lines 16, 17, 21-23, 29-31). Thus, the pressure is approximately the same inside and outside the basket, which then needs not be designed for the operating pressure.

Ravault may motivate one skilled in the art to use Ottle to reinforce impermeability with a glazing, even though it is unlikely as a metal foil is regarded as gas impermeable. Contrary to this, in the claimed invention, the basket is designed for high temperatures (page 4, lines 17-22), which require a high alloyed material or a coating of a thermal insulating material such as a ceramic material (page 4, lines 22-24). Thus, the reactor of Ravault would not motivate one skilled in the art to add a ceramic coating on the inner side of the foil of Ottle.

Claims 3-5 are rejected under 35 U.S.C. §103(a) as being unpatentable over Ottle in view of Fujitani et al. and Ravault and further in view of Mentschel. This rejection is respectfully traversed.

Applicants submit that Mentschel includes a typing error. Column 6, line 30 of Mentschel which now reads "contains a recess, which supports a post 105 protruding" should read "contains a recess 105, which supports a post 113 protruding" (based on Fig. 2 of Mentschel). Mentschel discloses an electric heater accommodated in recess 105 and thermocouples in chamber 106 (column 7, lines 20-35).

As illustrated in Fig. 2 of Mentschel, the heater is placed in the recess 105, which is on the other side of the outer wall 101 than the reaction chamber 106, where the reacting gas is present. Outer wall 101 limits the space where the reacting gas is present. A heater in the recess of Mentschel will not be surrounded by reacting gas and at operating pressure. This is in contrast to the heater of claimed invention, where the heater is installed on the wall around the inlet catalyst layer (page 5, lines 2, 3), i.e., inside the pressure vessel and surrounded by reaction gas.

Claim 10 is rejected under 35 U.S.C. §103(a) as being unpatentable over Ottle in view of Fujitani at al. and Ravault and further in view of Werges. This rejection is respectfully traversed.

Even if a bottom like the one of Werges were to be installed in the reactor of Ottle, this combination would still not enable the modified reactor of Ottle to ensure no by-pass of the catalyst bed simultaneously with having the same pressure on both sides of the wall surrounding the catalyst bed, in contrast to the reactor of claimed invention.

RESPONSE TO ARGUMENTS

Claim 1 recites the word "basket" for the device comprising an inlet channel, side walls and a bottom. The bottom supports the catalyst, and is perpendicular to the flow direction. Even though the foil of Ottle would be called "basket," it will not make the gas leave the catalyst inside the reactor in the same way as in the claimed reactor of present invention. As shown in Figs. 1 and 3 of Ottle, the foil is in gas tight connection with the outer wall; however, Fig. 4 of Ottle indicates that some or most of the catalyst bed is not surrounded by a foil. This means that no embodiment of the reactor of Ottle can -- at the same time -- ensure that all gas flows through the entire catalyst bed, simultaneously with having full operating pressure on both sides of the foil. This is in contrast to the claimed invention.

Ottle discloses in Fig. 4 an inlet part of an embodiment (18 is gas supply pipe (column 2, line 52)). Assuming that the outlet and the inlet are identical, the gas leaves the foil 30" at an angle shaped ring 36", which is secured to the foil and to the supply tube 18", i.e.,

discharge tube 20, which is connected to the transition pipe 12 (column 3, lines 27-31). Gas from this catalyst outlet can neither migrate nor flow backwards into the insulation layer around the foil.

The embodiments of Ottle cannot fulfill the features of ensuring the entire amount of gas passing the entire catalyst bed and ensuring the same pressure on both sides of the wall surrounding the catalyst bed. This is possible in the reactor of claim 1 of the claimed invention, as this basket - installed inside the reactor shell - comprises an inlet channel, a bottom and metallic side walls, where the sidewalls are insulated. This leaves a gap between the basket side wall and the reactor shell, where the gas leaving the basket can migrate into the insulation on the other side of the basket (page 4, lines 6-10).

The reactor of Ravault consists of porous ceramic bodies and layers (column 4, line 6). Ravault overcomes the problem of permeability by adding a layer of glazing (column 4, lines 12-16) to make the wall gas tight. This does not motivate one skilled in the art to add a ceramic layer on the foil of Ottle.

As noted above, the outer wall 101 of Mentschel is the boundary of that part of the device of Mentschel where the reacting gas is present. The heater is installed on the other side of this wall 101 (column 7, line 25), and is not surrounded by the reacting gas. Contrary to this, the heater of claimed invention is installed on the basket wall, which is inside the reactor shell, where the reaction gas is present and at the full operating pressure.

Allowance of all pending claims is solicited.

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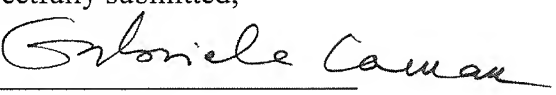
Respectfully submitted,

By 

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